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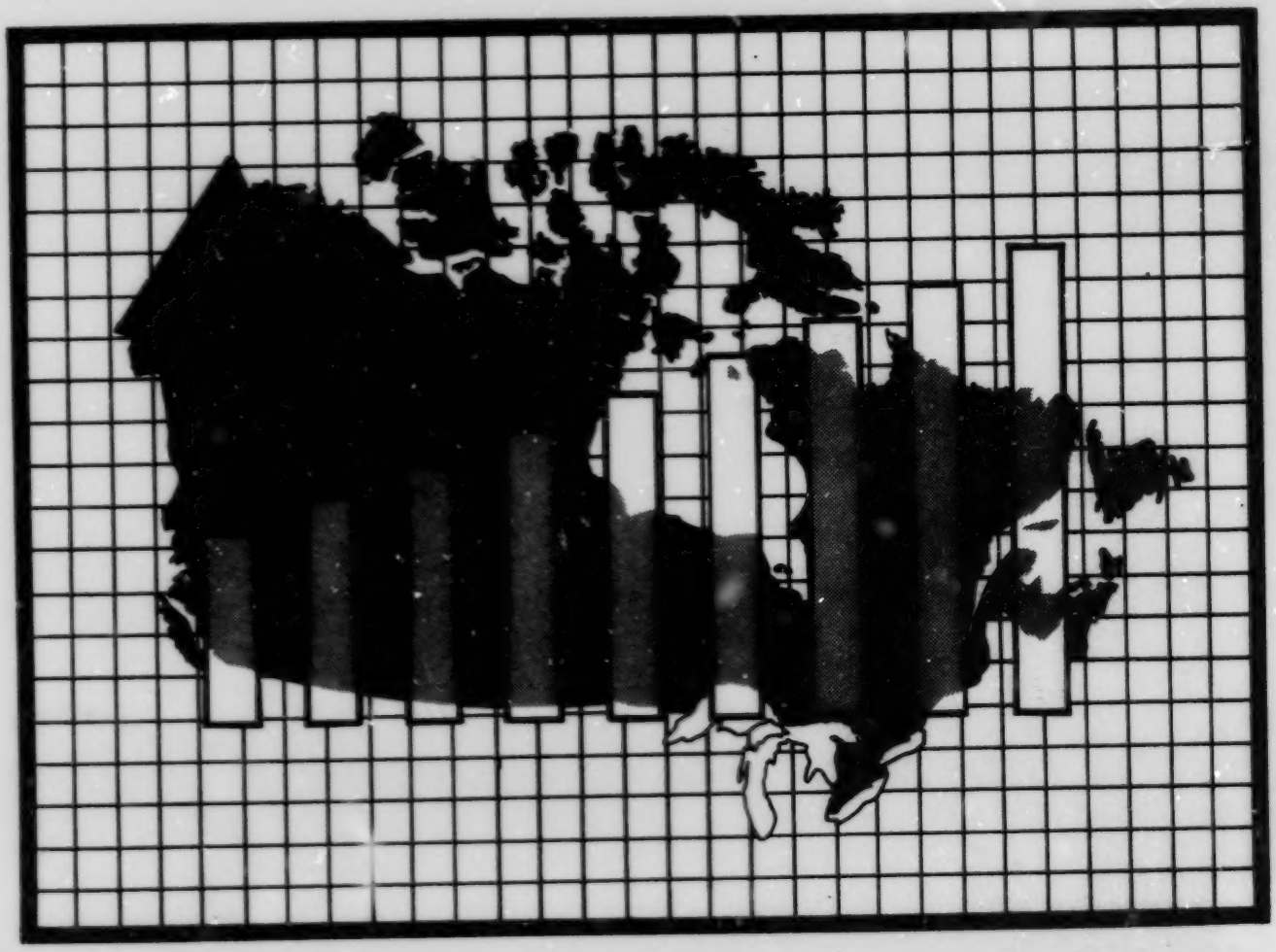
Forest Management Expenditures in Canada 1977-1981

J.H. Smyth, K.L. Ramsay and D.E. Barron



A Joint Report of the Great Lakes Forest Research Centre
and the Canadian Pulp and Paper Association

FOREST MANAGEMENT EXPENDITURES IN CANADA, 1977-1981

A JOINT REPORT OF THE GREAT LAKES
FOREST RESEARCH CENTRE AND THE CANADIAN
PULP AND PAPER ASSOCIATION

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ABSTRACT

Expenditures in forest management activities by governments and the forest industry for the years 1977, 1979 and 1981 are reported. Total expenditures on forest resource management, by all agencies, on a national basis increased significantly between 1977 and 1981. Total expenditures by all agencies increased from $660 million in 1977 to $1,248 in 1981, an increase of 89%. However, much of this increase was inflationary; in real terms, total expenditures increased by 26% over the period, or at a real compound rate of 4.75% per year. Expenditures on silviculture in Canada increased from $118 million in 1977 to $272 million in 1981, an increase in real terms of 54% over the period, or 9.0% per year. Substantial increases in silvicultural expenditures are noted in all provinces, but particularly in New Brunswick, British Columbia and Newfoundland.

RÉSUMÉ

On trouvera dans ce rapport les sommes d'argent engagées en aménagement forestier par les gouvernements et l'industrie forestière pour les années 1977, 1979 et 1981. Les organismes provinciaux et fédéraux, ainsi que l'industrie forestière, ont dépensé en aménagement forestier une somme globale de $660 millions en 1977 par rapport à $1,248 millions en 1981, ce qui représente une augmentation importante de 89%. Cependant, la grande partie de cette augmentation est inflationniste. Les dépenses globales n'ont en réalité augmenté que de 26% durant cette période, soit un taux d'augmentation composé de 4.75% par an. Au Canada, les dépenses en sylviculture ont passé de $118 millions en 1977 à $272 millions en 1981, soit un taux de 9% par an. On peut noter d'importantes augmentations dans les dépenses en sylviculture dans toutes les provinces, notamment au Nouveau-Brunswick, en Colombie-Britannique et à Terre-Neuve.

ACKNOWLEDGMENTS

This report of forest management expenditures in Canada was a cooperative effort between the Canadian Forestry Service and the Canadian Pulp and Paper Association. Both agencies would like to extend their thanks to all provincial forest management agencies and member companies of the Canadian Pulp and Paper Association for their cooperation in providing the expenditure data required for this study.

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INTRODUCTION

This report, a cooperative effort between the Canadian Forestry Service and the Canadian Pulp and Paper Association, is the third in a series of reports providing information pertaining to the level of funding for forest management activity by government and the forest industry in Canada. The two previous reports were prepared by Reed and Associates Ltd. (1978, 1980). The present report follows essentially the same format as that introduced in the first two, and covers the period 1977-1981.

The objective of this report is to summarize expenditures on forest management in Canada on a provincial basis by provincial governments, the federal government and the forest industry for the period 1977-1981. Expenditures are detailed by selected management expenditure categories.

Forest management, for the purposes of this report, includes the whole range of activities from regeneration through to stand improvement, protection, research and support services, such as forest inventory and nursery infrastructure. Access roads are also included.

Data for this report were obtained from the provincial agencies responsible for forest management, the federal government, and member companies of the Canadian Pulp and Paper Association, and are reported on a provincial basis.

The section on public expenditures on forest management deals with expenditures by provincial governments and the federal government for the fiscal years 1977/78, 1979/80, and 1981/82.

The section on industry expenditures covers the calendar years 1977, 1979 and 1981.

The summary of government and industry expenditures covers the years 1977, 1979 and 1981. For convenience and ease of comparison, fiscal-year data are reported on a calendar-year basis. For example, government expenditures for fiscal year 1977/78 are reported as 1977 calendar-year data.

The Appendices provide data on expenditures on forest management by source and activity for each province for the fiscal years 1979/80, 1980/81 and 1981/82 for government, and for 1977, 1979 and 1981 for the forest industry.

PUBLIC EXPENDITURES ON FOREST MANAGEMENT

Introduction

Ninety percent, or 3.1 million km^2, of Canada's forest land is classified as provincial crown land. The primary responsibility for forest management rests with the provinces. The remaining 10%, or .3 million km^2, is under federal, private, and municipal ownership. Because of the provincial responsibility for management of provincial crown lands, and the role of the federal government in forest research and development and funding of forest management activities through federal-provincial forestry agreements and other mechanisms, this section sets out the level of expenditures by both governments on selected forest management activities.

Scope and Method

For purposes of reporting, public expenditures on forest management include the following seven broad categories of activity: silviculture, protection, resource access, forest inventory, research, timber management and administration. Expenditures made under federal-provincial forest management agreements were assigned to the appropriate management activity. This selection essentially follows that used by Reed et al. (1978). It was chosen primarily because the activities tend to accommodate, in the majority of cases, the different accounting procedures followed by the provinces, and provides for some continuity in examining expenditures over a period of time. A detailed breakdown of the various elements within each activity is found in Appendix 1.

Analysis of public forestry expenditures was based principally on information solicited from each provincial agency directly responsible for forest management, the Canadian Forestry Service of the Department of the Environment, the Department of Indian and Northern Affairs, and the former Department of Regional Economic Expansion, now the Department of Regional Industrial Expansion.

Both published and unpublished data were used. In several provinces, expenditures for fiscal year 1981/82 had not yet been completed, and in these cases, budget estimates were used. In a number of provinces, agencies responsible for forest management also administer parks, wildlife, fisheries, tourism, mines, etc. In addition, expenditures on forest management activities are not classified the same way in each jurisdiction and, therefore, some adjustments had to be made. Each provincial agency, when preparing the data for this study, attempted to account for these problem areas and report the best information possible.

The expenditure data collected for this report cover the fiscal years 1979/80, 1980/81, and 1981/82. Tables detailing these expenditures for each province and the territories are found in Appendix 2. For purposes of analysis, however, the fiscal years 1977/78, 1979/80, and 1981/82 are used to illustrate the pattern of public expenditures for the five-year period 1977-1981. Data for fiscal 1977/78 were extracted, with minor modification for the province of Ontario, from the report by Reed et al. (1978).

Distribution of Public Expenditures by Province

Table 1 outlines provincial and federal expenditures on forest management activities for 1977/78, 1979/80, and 1981/82.

For Canada as a whole, expenditures amounted to approximately $438 million in 1977/78, increasing significantly to $928 million by 1981/82. For the three years tabulated, provincial expenditures as a proportion of total dollars spent ranged from 82% to 84%.

As one would expect, the greater share of provincial monies for forest management were expended in British Columbia, Ontario, Quebec, and Alberta. Of total provincial expenditures, these four provinces accounted for 86%, 88% and 87% in 1977/78, 1979/80, and 1981/82, respectively.

Federal funds spent on forest management over the five-year period increased sharply from $77 million in 1977/78 to $143 million in 1981/82. Federal expenditures as a percentage of total federal-provincial expenditures (excluding the territories) accounted for 16%, 16% and 14% in 1977/78, 1979/80, and 1981/82, respectively. The majority of these funds were disbursed through federal-provincial forest management subsidiary agreements and the regional forest research centres and national institutes of the Canadian Forestry Service. Over half of the federal funds shown for each of the years listed in Table 1 were disbursed in the provinces of New Brunswick, Quebec, and Ontario. All forest management activity conducted in the Yukon Territory and Northwest Territories is funded by the federal government.

Distribution of Public Expenditures by Activity

Table 2 provides a national breakdown of public expenditures by the previously defined activities for 1977/78, 1979/80, and 1981/82.

For Canada, expenditures on silviculture during the period amounted to $102.1 million in 1977/78 and more than doubled to $229.3 million by 1981/82. Expenditures on protection rose sharply from $96.7 million in 1977/78 to $285.3 million in 1981/82, almost a threefold increase. The sharp rise in protection expenditures can be attributed mainly to the fact that there were extensive forest fires in several provinces in 1980 and 1981. Monies expended on resource access almost doubled during the period, rising from $55.8 million in 1977/78 to $102.5 million in 1981/82. Forest inventory, the activity in which the fewest funds were expended, increased moderately from $14.4 million in 1977/78 to $22.6 million in 1981/82; funds expended on forest research also rose during the period, from $37.2 million in 1977/78 to $56.4 million in 1981/82. Monies expended on timber management (operation cruising, data collection, planning, etc.), were not identified separately in the report by Reed et al. (1978)[3] but, because of its importance in forest management planning, timber management was included as a separate category in the current study. Expenditures on this activity in-

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[3] Reed included 'timber management activity expenditures' in the category 'Administration and Other'.

Table 1. Public expenditures on forest management for 1977/78, 1979/80 and 1981/82 by province.

	1977/78[a]			1979/80[b]			1981/82[b]		
	Provincial	Federal	Total	Provincial	Federal	Total	Provincial	Federal	Total
					$000,000				
Newfoundland	6.4	11.3	17.7	7.1	8.6	15.7	13.3	8.2	21.5
Prince Edward Island	0.2	0.6	0.8	0.6	1.4	2.0	1.2	2.0	3.2
Nova Scotia	12.4	1.2	13.6	8.3	3.0	11.3	10.6	5.0	15.6
New Brunswick	16.1	10.5	26.6	18.3	12.4	30.7	26.7	14.5	41.2
Quebec	73.6	23.0	96.6	95.1	35.6	130.7	106.5	46.7	153.2
Ontario	86.9[c]	10.8	97.7	106.2	11.5	117.7	176.3	24.3	200.6
Manitoba	6.3	-	6.3	9.5	1.3	10.8	15.7	-	15.7
Saskatchewan	7.7	0.6	8.3	13.2	3.3	16.5	34.0	2.4	36.4
Alberta	26.9	4.2	31.1	45.4	3.6	49.0	116.3	4.9	121.2
British Columbia	125.2	4.1	129.3	186.7	10.4	197.1	284.9	10.0	294.9
Subtotal	361.7	66.3	428.0	490.4	91.1	581.5	785.5	118.0	903.5
Yukon/N.W.T.	-	10.5	10.5	-	12.2	12.2	-	24.7	24.7
Total	361.7	76.8	438.5	490.4	103.3	593.7	785.5	142.7	928.2

[a] Source: Reed et al. (1978)
[b] Appendix 2
[c] Source: Ont. Min. Nat. Resour., Toronto, Ont.

Table 2. Distribution of public expenditures on forest management for 1977/78, 1979/80, and 1981/82 by activity.

	1977/78[a]			1979/80[b]			1981/82[b]		
	Provincial	Federal	Total	Provincial	Federal	Total	Provincial	Federal	Total
					$000,000				
Silviculture	83.5	18.6	102.1	115.7	26.9	142.6	195.6	33.7	229.3
Protection	90.5	6.2	96.7	125.8	11.2	137.0	262.8	22.5	285.3
Resource access	45.2	10.6	55.8	72.3	19.2	91.5	79.5	23.0	102.5
Inventory	13.6	0.8	14.4	13.7	1.4	15.1	20.8	1.8	22.6
Research	6.2	31.0	37.2	9.9	30.1	40.0	16.5	39.9	56.4
Timber management	-	-	-	43.1	2.9	46.0	71.6	3.1	74.7
Administration and other	121.8	10.5	132.3	110.0	11.5	121.5	138.8	18.6	157.4
Total	360.8	77.7	438.5	490.5	103.2	593.7	785.6	142.6	928.2

[a] Source: Reed et al. (1978).
[b] Appendix 2.

creased from $46.0 million in 1979/80 to $74.7 million in 1981/82. The administrative and other category, which is mainly overhead and support service for forest management activities, represented a significant percentage of total dollars disbursed in each of the years shown.

Distribution of Public Expenditures by Province and Activity

Tables 3, 4 and 5 provide detailed information on public expenditures by province and activity for 1977/78, 1979/80, and 1981/82. The tables to some extent reflect the forest management priorities established by each province over the five-year period, and are indicative to some extent of the different problems faced in each of these jurisdictions.

Silviculture consists mainly of the following activities: regeneration, tending, site preparation, marking, silvicultural support, etc. The greater percentage of silvicultural funding in all provinces was expended almost entirely on regeneration, related site preparation, and silvicultural support operations. Expenditures on each of the other silvicultural components remained minor. Extension forestry and assistance to the small private woodlot owner under various provincial programs are included in these expenditures. There were significant increases during the period in silvicultural expenditures in most provinces, notably Newfoundland, New Brunswick, Ontario, Alberta, and British Columbia. Expenditures by these provinces in 1981/82 were at least double what they were in 1977/78.

Expenditures on protection, fire suppression and pest control vary greatly from year to year and from province to province, depending on the incidence and severity of pest and fire problems. Generally speaking, the greater proportion of protection costs consisted mainly of fire suppression in Ontario, Newfoundland, and western Canada, while in Quebec and Atlantic Canada it is estimated that approximately one-third to one-half of the protection costs were expended on pest control programs, mainly aerial spraying against the spruce budworm in commercially operable and high-value coniferous forests and plantations. Expenditures shown for protection in the Yukon Territory and Northwest Territories were mainly for fire suppression.

Expenditures for resource access include expenditures on permanent roads, bridges, and other supporting infrastructure, as well as stumpage offsets in British Columbia. Most roads constructed by the provinces are multi-purpose and may be of a higher standard than would normally be required for harvesting, silviculture or protection purposes. Expenditures on resource access increased significantly during the period — from $55.8 million in 1977/78 to $102.5 million in 1981/82. Under federal-provincial forest management subsidiary agreements, the federal government contributed approximately 20% of the funding for road programs during the period.

Table 3. Public expenditures on forest management by province and activity, 1977/78[a].

	Silviculture	Protection	Resource access	Inventory	Research[b]	Timber management	Admin. and Other	Total[c]
				$000,000				
Newfoundland	.9	2.3	4.0	0.2	1.8	-	8.5	17.7
Prince Edward Island	.6	-	-	-	-	-	0.2	0.8
Nova Scotia	2.5	1.3	1.4	0.4	0.3	-	7.7	13.6
New Brunswick	5.2	6.1	1.9	0.8	3.8	-	8.8	25.6
Quebec	23.1	22.1	16.7	4.2	9.3	-	21.2	96.6
Ontario[d]	31.2	29.5	8.4	1.0	11.6	-	16.0	97.7
Manitoba	0.9	3.5	0.9	0.4	-	-	0.6	6.3
Saskatchewan	2.4	2.9	1.5	0.6	-	-	0.9	8.3
Alberta	4.4	8.8	-	0.8	3.8	-	13.3	31.1
British Columbia	30.9	14.3	21.0	6.0	6.6	-	50.5	129.3
Subtotal	102.1	90.8	55.8	14.4	37.2	-	127.7	428.0
Yukon/N.W.T.	-	5.9	-	-	-	-	4.6	10.5
Total[c]	102.1	96.7	55.8	14.4	37.2	-	132.3	438.5

[a] Source: Reed et al. (1978).
[b] Research includes Canadian Forestry Service expenditures.
[c] Totals may not be precise because figures were rounded.
[d] Source: Ont. Min. Nat. Resour., Toronto, Ont.

Table 4. Public expenditures on forest management by province and activity, 1979/80.

	Silviculture	Protection	Resource access	Inventory	Research	Timber management	Admin. and Other	Total[a]
				$000,000				
Newfoundland	.6	4.5	3.0	.9	2.1	.7	3.9	15.7
Prince Edward Island	1.3	.1	.1	-	.1	.1	.3	2.0
Nova Scotia	2.1	2.9	2.3	.5	.3	.9	2.2	11.3
New Brunswick	6.3	6.6	2.0	.4	5.3	1.8	8.3	30.7
Quebec	28.0	15.5	24.6	3.4	6.3	15.7	37.2	130.7
Ontario	41.9	30.0	11.2	1.3	13.3	12.5	7.5	117.7
Manitoba	2.1	6.0	.9	.5	-	.6	.7	10.8
Saskatchewan	3.8	5.4	4.0	1.6	-	.9	.8	16.5
Alberta	6.8	18.4	.9	1.0	3.6	.4	17.9	49.0
British Columbia	49.7	37.3	42.5	5.4	9.0	10.4	42.8	197.1
Subtotal	142.6	126.7	91.5	15.0	40.0	44.0	121.6	581.5
Yukon/N.W.T.	-	10.2	-	-	-	2.0	-	12.2
Total[a]	142.6	136.9	91.5	15.0	40.0	46.0	121.6	593.7

[a] Totals may not be precise because figures were rounded.
Source: Appendix 2.

Table 5. Public expenditures on forest management by province and activity, 1981/82.

	Silviculture	Protection	Resource access	Inventory	Research	Timber management	Admin. and Other	Total[a]
				$000,000				
Newfoundland	2.3	4.7	2.6	.9	3.4	.8	6.8	21.5
Prince Edward Island	1.7	.1	.1	.1	.3	.2	.5	3.2
Nova Scotia	4.7	3.4	2.6	.5	.3	1.9	2.2	15.6
New Brunswick	10.8	11.3	.7	.9	6.5	1.5	9.5	41.2
Quebec	40.1	20.5	25.7	3.9	7.7	17.4	37.9	153.2
Ontario	79.2	47.9	25.2	3.7	17.5	16.2	10.9	200.6
Manitoba	1.3	11.6	.6	.6	-	.9	.7	15.7
Saskatchewan	3.3	26.4	2.6	1.9	-	.9	1.3	36.4
Alberta	9.9	76.1	3.2	.8	5.7	.5	25.0	121.2
British Columbia	76.0	61.0	39.2	9.1	15.0	32.1	62.5	294.9
Subtotal	229.3	263.0	102.5	22.6	56.4	72.4	157.3	903.5
Yukon/N.W.T.	-	22.3	-	-	-	2.4	-	24.7
Total[a]	229.3	285.3	102.5	22.6	56.4	74.8	157.3	928.2

[a] Totals may not be precise because figures were rounded.

Source: Appendix 2.

Expenditures on forest inventory tend to vary considerably from year to year within provinces, reflecting to some degree the priority each province puts on inventory analysis and interpretation, as well as the amount of field work necessary to keep inventories up to date. Over all, funds expended on forest inventory operations increased by $8.3 million, from $14.4 million in 1977/78 to $22.6 million in 1981/82. Approximately 81% of expenditures on forest inventory activities during the period were made in Quebec, Ontario, Saskatchewan, and British Columbia.

Expenditures on research and development represent monies expended by both governments. Of the total funds used for research and development activities, 17%, 25% and 29% were spent by provincial authorities in 1977/78, 1979/80, and 1981/82, respectively. Only the provinces of Quebec, Ontario, and British Columbia spent significant amounts on research. The Canadian Forestry Service, the federal agency that conducts most of the forest research in Canada, spent $30.9 million, $30.1 million, and $39.9 million in those same three years, respectively.

Timber management includes operations such as cruising, cut inspections, and management planning. Data for this activity are available only for the period 1978/79 to 1981/82, and are tabulated in Appendix 2. Total expenditures reported for 1979/80 were $46.0 million, and for 1981/82 were $74.7 million.

The 'administration and other' category is highly variable between provinces and, except for 1977/78 where timber management operations are incorporated, includes mainly head office and district overhead and support items.

The expenditures recorded for the period 1977/78 to 1981/82 have been interpreted with care to avoid misleading generalizations. The seven activities to which expenditures were assigned were chosen to provide a general perspective on the disbursement of funds for forest management. No inferences are drawn from the expenditure distribution, or from the apparent priorities among provinces. Because of differences in record-keeping among provinces, the expenditures assigned to each activity may not represent the total effort in each province or territory. Total figures, however, do represent the total effort and activity variations are considered to be minor.

INDUSTRY EXPENDITURES ON FOREST MANAGEMENT

Introduction

The degree to which the forest industry in Canada participates in forest management varies considerably across the country. Generally speaking, the nature and extent of this participation is determined by the level to which forest management responsibility is delegated under the various agreements and tenures through which the industry secures its supply of timber. In most provinces, cutting rights on crown lands have been awarded to the industry under long-term licenses or leases covering extensive areas of land. Under many of these tenures, the licensee is responsible for those management practices which relate to the existing crop such as inventory, working plans, and cutting systems. These are usually subject to approval by provincial forest authorities.

Under some tenures, the responsibility for reforestation and stand treatment has been retained by the province but usually the tenure agreement assigns responsibility for these treatments to the licensee. In some cases, the crown provides stumpage incentives in the form of offsets, or rebates to ensure that adequate treatments are carried out. Provincial audits are performed periodically to determine the extent and quality of these treatments. Favorable audits are a prerequisite for license renewal.

In addition to long-term licenses, a portion of the cutting rights on provincial forest lands is awarded on small parcels of land for shorter terms. In most cases, licensees under these short-term timber sales have no responsibility for management beyond the harvesting of the present crop in accordance with provincial utilization standards. In British Columbia and Alberta, however, some short-term timber sales also require the licensee to be responsible for regeneration.

The industry also makes substantial expenditures on its own private lands.

Survey of the Forest Industry

Since 1977, the Canadian Pulp and Paper Association (CPPA) has annually surveyed its member companies to determine their levels of expenditure on forest management. The information requested in this survey includes the total expenditures, amounts recovered from government through stumpage offsets rebates, and the net cost to the company.

This information is collected under the following five broad forest management activities:

- forest regeneration
- stand tending
- forest protection
- forest access
- other forestry

These five activities are explained in Appendix 1.

Information collected by Reed et al. (1978, 1980) was used to estimate forest management expenditures for that portion of the industry not affiliated with the CPPA. Through the use of these estimates and the CPPA survey, expenditures for 1981 were determined by province and forest management activity. A summary of industry expenditures by province and activity for the years 1977, 1979 and 1981 is found in Appendix 3.

Summary of Industry Expenditures

In current dollars, gross industry expenditure on forest management in Canada increased by approximately 46% between 1977 and 1981, as shown in Table 6. Table 7 indicates that total industry expenditures on regeneration and stand tending increased from $25 million in 1977 to $80 million in 1981, representing an increase of over 200%. In the 'other forestry' category, which includes expenditures on forest management administration, planning and support, a similar increase is noted. Forest protection expenditures have just kept pace with inflation over this period and annual access expenditures have remained relatively constant.

Net expenditures by industry are summarized by province and management activity for 1977, 1979 and 1981 in Tables 8, 9 and 10.

Table 6. Industry expenditures on forest management for 1977, 1979 and 1981 by province.

	1977			1979			1981		
	Gross expenditure	Recovered from gov't	Net industry	Gross expenditure	Recovered from gov't	Net industry	Gross expenditure	Recovered from gov't	Net industry
	$000,000								
Newfoundland	3.1	1.6	1.5	3.8	.2	3.6	8.3	.5	7.8
Nova Scotia	5.9	.6	5.3	6.4	1.1	5.3	13.1	2.6	10.4
New Brunswick	11.2	.4	10.8	15.6	.9	14.7	21.7	1.0	20.7
Quebec	43.6	.2	43.4	51.8	3.5	48.3	72.0	16.9	55.2
Ontario	31.1	1.2	29.9	30.0	1.0	29.0	45.1	16.1	29.0
Manitoba	1.0	-	1.0	1.8	.2	1.6	2.8	.4	2.4
Saskatchewan	3.1	.3	2.8	3.1	-	3.1	4.8	-	4.8
Alberta	13.1	.1	13.0	8.5	-	8.5	10.3	.1	10.2
British Columbia	176.8	63.1	113.7	218.8	54.0	164.8	246.1	67.0	179.1
Total[a]	288.9	67.7	221.2	339.8	60.9	278.9	424.2	104.6	319.6

[a] Totals may not be precise because figures were rounded.
Source: Appendix 3.

Table 7. Distribution of industry expenditures on forest management for 1977, 1979 and 1981 by activity.

	1977			1979			1981		
	Gross expenditure	Recovered from gov't	Net industry	Gross expenditure	Recovered from gov't	Net industry	Gross expenditure	Recovered from gov't	Net industry
	$000,000								
Regeneration	19.0	6.5	12.6	31.8	15.7	16.1	55.7	25.2	30.5
Stand tending	6.1	2.3	3.7	11.4	5.2	6.2	24.1	11.4	12.6
Forest protection	20.1	1.4	18.7	22.2	1.0	21.2	27.3	.9	26.4
Forest access	215.4	54.4	161.0	228.1	34.7	193.3	224.7	61.9	162.8
Other forestry	28.2	3.0	25.2	46.3	4.2	42.1	92.5	5.1	87.3
Total[a]	288.9	67.7	221.2	339.8	60.9	278.9	424.2	104.6	319.6

[a] Totals may not be precise because figures were rounded.
Source: Appendix 3.

Table 8. Net industry expenditures on forest management by province and activity, 1977.

	Regeneration	Stand tending	Forest protection	Forest access	Other forestry	Total
			$000,000			
Newfoundland	--	--	.2	.6	.6	1.4
Prince Edward Island	--	--	--	--	--	--
Nova Scotia	.7	.6	--	3.5	.5	5.3
New Brunswick	2.7	--	3.7	2.8	1.5	10.7
Quebec	1.2	.6	9.1	24.8	7.7	43.4
Ontario	.7	--	2.5	23.1	3.4	29.7
Manitoba	--	--	--	.8	.2	1.0
Saskatchewan	.3	--	.1	2.1	.2	2.7
Alberta	1.9	--	.9	8.6	1.6	13.0
British Columbia	5.0	2.4	2.1	94.7	9.4	113.6
Yukon/N.W.T.	--	--	--	--	--	--
TOTAL	12.5	3.6	18.6	161.0	25.1	220.8

Source: Appendix 3.

Table 9. Net industry expenditures on forest management by province and activfty, 1979.

	Regeneration	Stand tending	Forest protection	Forest access	Other forestry	Total
			$000,000			
Newfoundland	--	--	1.1	1.1	1.2	3.4
Prince Edward Island	--	--	--	--	--	--
Nova Scotia	1.0	.8	--	2.8	.5	5.1
New Brunswick	3.7	.4	2.7	3.4	4.4	14.6
Quebec	1.5	.7	7.7	29.1	9.4	48.4
Ontario	.4	--	3.4	20.8	4.3	28.9
Manitoba	--	--	--	1.1	.3	1.4
Saskatchewan	.3	--	--	2.3	.4	3.0
Alberta	1.9	--	1.0	4.3	1.2	8.4
British Columbia	7.1	4.1	5.0	128.3	20.3	164.8
Yukon/N.W.T.	--	--	--	--	--	--
TOTAL	15.9	6.0	20.9	193.2	42.0	278.0

Source: Appendix 3.

Table 10. Net industry expenditures on forest management by province and activity, 1981.

	Regeneration	Stand tending	Forest protection	Forest access	Other forestry	Total
			$000,000			
Newfoundland	.4	1.3	2.9	2.2	.9	7.7
Prince Edward Island	--	--	--	--	--	--
Nova Scotia	2.4	1.6	.3	3.5	2.6	10.4
New Brunswick	6.1	1.0	4.3	2.2	7.1	20.7
Quebec	2.2	.8	9.4	28.0	14.7	55.1
Ontario	1.1	.1	4.4	18.4	5.1	29.1
Manitoba	--	--	--	1.8	.6	2.4
Saskatchewan	.7	--	--	3.7	.4	4.8
Alberta	2.8	.1	.7	4.5	2.1	10.2
British Columbia	14.7	7.7	4.3	98.5	53.9	179.1
Yukon/N.W.T.	--	--	--	--	--	--
TOTAL	30.4	12.6	26.3	162.8	87.4	319.5

Source: Appendix 3.

SUMMARY OF PUBLIC AND INDUSTRY EXPENDITURES ON FOREST MANAGEMENT

Total expenditures on forest resource management in Canada increased significantly between 1977 and 1981. Tables 11 and 12 indicate that total forest management expenditures by all agencies increased from $660 million in 1977 to $1,248 million in 1981, representing an increase of 89%. However, much of this increase was inflationary; in real terms[4], total expenditures increased by 26% over this period, or at a real compound rate of 4.75% per year.

Tables 13, 14 and 15 illustrate that, on a regional basis, all provinces experienced increases in forest management expenditures between 1977 and 1981. Alberta, Saskatchewan and Manitoba had greater than average increases, primarily as a result of greater expenditures on forest protection over this period.

Appendix 1 shows the major activities to which public and industry expenditures were assigned to determine total expenditures.

Total Expenditures

Silviculture

Expenditures on silviculture in Canada increased from $118 million in 1977 to $272 million in 1981. In real terms, silvicultural expenditures increased by 54% over this period, representing a real compound growth rate of 9.0% per year. Substantial increases in silvicultural expenditures are noted in all provinces, but particularly in New Brunswick, British Columbia and Newfoundland.

Silvicultural expenditures increased from 17% of all forest management expenditures in 1977 to 22% in 1981. Although silvicultural efforts are not at a satisfactory level, the trend noted over this reporting period is encouraging.

Forest protection

Annual expenditures on forest protection vary considerably depending on a number of environmental factors. In current dollars, expenditures on forest protection in Canada increased from $115 million in 1977 to $312 million in 1981, representing an increase of 171%. This large increase is due not only to a greater incidence of fire, insects and disease, but also to an improvement in the overall level of protection of the resource.

Forest access

Expenditures on forest access increased marginally from $217 million in 1977 to $265 million in 1981. In real terms, access expenditures decreased by 18% over this period. Forest access expenditures decreased from 33% of all forest management expenditures in 1977 to only 21% in 1981.

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4 Implicit price index for government current expenditures on goods and services, 1977 = 100.

Table 11. Public and industry expenditures on forest management for 1977, 1979 and 1981 by province.

Province	1977				1979				1981			
	Provincial	Federal	Industrial	Total	Provincial	Federal	Industrial	Total	Provincial	Federal	Industrial	Total
Newfoundland	6.4	11.3	1.4	19.1	7.1	8.6	3.6	19.3	13.3	8.2	7.8	29.3
Prince Edward Island	0.2	0.6	0.0	0.8	0.6	1.4	0.0	2.0	1.2	2.0	0.0	3.2
Nova Scotia	12.4	1.2	5.3	18.9	8.3	3.0	5.3	16.6	10.6	5.0	10.4	26.0
New Brunswick	16.1	10.5	10.8	37.4	18.3	12.4	14.7	45.4	26.7	14.5	20.7	61.9
Quebec	73.6	23.0	43.4	140.0	95.1	35.6	48.3	179.0	106.5	46.7	55.2	208.4
Ontario	86.9	10.8	29.9	127.6	106.2	11.5	29.0	146.7	176.3	24.3	29.0	229.6
Manitoba	6.3	0.0	1.0	7.3	9.5	1.3	1.6	12.4	15.7	0.0	2.4	18.1
Saskatchewan	7.7	0.6	2.8	11.1	13.2	3.3	3.1	19.6	34.0	2.4	4.8	41.2
Alberta	26.9	4.2	13.0	44.1	45.4	3.6	8.5	57.5	116.3	4.9	10.2	131.4
British Columbia	125.2	4.1	113.7	243.0	186.7	10.4	164.8	361.9	284.9	10.0	179.1	474.0
Subtotal	361.7	66.3	221.3	649.3	490.4	91.1	278.9	860.4	785.5	118.0	319.6	1 223.1
Yukon/NWT	0.0	10.5	0.0	10.5	0.0	12.2	0.0	12.2	0.0	24.7	0.0	24.7
Total[a]	361.6	76.8	221.3	659.8	490.4	103.3	278.9	872.6	785.5	142.7	319.6	1 247.8

[a] Totals may not be precise because figures were rounded. Rounding also accounts for discrepancies among tables 11-15.

Table 12. Distribution of public and industry expenditures on forest management activity for 1977, 1979 and 1981.

Activity	1977				1979				1981			
	Provincial	Federal	Industrial	Total	Provincial	Federal	Industrial	Total	Provincial	Federal	Industrial	Total
Silviculture	83.5	18.6	16.3	118.4	115.7	26.9	22.3	164.9	195.6	33.7	43.1	272.4
Protection	90.5	6.2	18.7	115.4	125.8	11.2	21.2	158.2	262.8	22.5	26.4	311.7
Access	45.2	10.6	161.0	216.8	72.3	19.2	193.3	284.8	79.5	23.0	162.8	265.3
Research[a]	6.2	31.0	0.0	37.2	9.9	30.1	0.0	40.0	16.5	39.9	0.0	56.4
Other[b]	135.4	11.3	25.2	171.9	166.8	15.8	42.1	224.7	231.2	23.5	87.3	342.0
Total	360.8	77.7	221.2	659.7	490.5	103.2	278.9	872.6	785.6	142.7	319.6	1 247.8

[a] Research expenditures include only provincial and federal estimates.
[b] Other expenditures in this case include the 'inventory', 'timber management' and 'administration and other' categories of the public expenditures and the 'other forestry' category of the industrial expenditure.

Table 13. Public and industry expenditure on forest management by province and activity, 1977[a].

Province	Silviculture	Protection	Access	Research	Other	Total[b]
			$000,000			
Newfoundland	0.9	2.5	4.6	1.8	9.3	19.1
Prince Edward Island	0.6	0.0	0.0	0.0	0.2	0.8
Nova Scotia	3.8	1.3	4.9	0.3	8.6	18.9
New Brunswick	7.9	9.8	4.7	3.8	11.1	37.3
Quebec	24.9	31.2	41.5	9.3	33.1	140.0
Ontario	31.9	32.0	31.5	11.6	20.4	127.4
Manitoba	0.9	3.5	1.7	0.0	1.2	7.3
Saskatchewan	2.7	3.0	3.6	0.0	1.7	11.0
Alberta	6.3	9.7	8.6	3.8	15.7	44.1
British Columbia	38.3	16.4	115.7	6.6	65.9	242.9
Subtotal	118.2	109.4	216.8	37.2	167.2	648.8
Yukon/NWT	0.0	5.9	0.0	0.0	4.6	10.5
Total[b]	118.2	115.3	216.8	37.2	171.8	659.3

[a] Public expenditures included in this table are for fiscal 1977/78.
[b] Totals may not be precise because figures were rounded.

Table 14. Public and industry expenditure on forest management by province and activity, 1979[a].

Province	Silviculture	Protection	Access	Research	Other	Total[b]
			$000,000			
Newfoundland	0.6	5.6	4.1	2.1	6.7	19.1
Prince Edward Island	1.3	0.1	0.1	0.1	0.4	2.0
Nova Scotia	3.9	2.9	5.1	0.3	4.1	16.3
New Brunswick	10.4	9.3	5.4	5.3	14.9	45.3
Quebec	30.2	23.2	53.7	6.3	65.7	179.1
Ontario	42.3	33.4	32.0	13.3	25.6	146.6
Manitoba	2.1	6.0	2.0	0.0	2.1	12.2
Saskatchewan	4.1	5.4	6.3	0.0	3.7	19.5
Alberta	8.7	19.4	5.2	3.6	20.5	57.4
British Columbia	60.9	42.3	170.8	9.0	78.9	361.9
Subtotal	164.5	147.6	284.7	40.0	222.6	859.4
Yukon/NWT	0.0	10.2	0.0	0.0	2.0	12.2
Total[b]	164.5	157.8	284.7	40.0	224.6	871.6

[a] Public expenditures included in this table are for fiscal 1979/80.
[b] Totals may not be precise because figures were rounded.

Table 15. Public and industry expenditure on forest management by province and activity, 1981[a].

Province	Silviculture	Protection	Access	Research	Other	Total[b]
			$000,000			
Newfoundland	4.0	7.6	4.8	3.4	9.4	29.2
Prince Edward Island	1.7	0.1	0.1	0.3	1.0	3.2
Nova Scotia	8.7	3.7	6.1	0.3	7.2	26.0
New Brunswick	17.9	15.6	2.9	6.5	19.0	61.9
Quebec	43.1	29.9	53.7	7.7	73.9	208.3
Ontario	80.4	52.3	43.6	17.5	35.9	229.7
Manitoba	1.3	11.6	2.4	0.0	2.8	18.1
Saskatchewan	4.0	26.4	6.3	0.0	4.5	41.2
Alberta	12.8	76.8	7.7	5.7	28.4	131.4
British Columbia	98.4	65.3	137.7	15.0	157.6	474.0
Subtotal	272.3	289.3	265.3	56.4	339.7	1 223.0
Yukon/NWT	0.0	22.3	0.0	0.0	2.4	24.7
Total[b]	272.3	311.6	265.3	56.4	342.1	1 247.7

[a] Public expenditures included in this table are for fiscal 1981/82.

[b] Totals may not be precise because figures were rounded.

Research and development

Expenditures on forest management research and development in Canada increased slightly from $37 million in 1977 to $56 million in 1981. Expenditures in this area have just kept pace with inflation.

Other

Expenditures on forest management planning, administration and support increased from $172 million in 1977 to $342 million in 1981. This represents a real increase of 33% over this period, or a real compound growth rate of 5.8% per year.

Provincial Expenditures

Provincial expenditures on forest resource management increased from $362 million in 1977 to $786 million in 1981. This represents a real increase of 45%, or 7.7% per year. Provincial governments accounted for 55% of all forest management expenditures in 1977 and for 63% of total expenditures in 1981. Provincial governments increased expenditures in all areas of forest management over this period, particularly in the areas of silviculture and protection.

Federal Expenditures

Federal expenditures on forest management in Canada increased from $78 million in 1977 to $143 million in 1981. This represents a real increase of 22%, or a real growth rate of 4.1% per year. Much of the increase in federal expenditures can be attributed to greater participation in the areas of resource access and protection. The federal government accounted for approximately 12% of all forest management expenditures in 1977 and 11% in 1981.

Industry Expenditures

Expenditures on forest resource management increased from $221 million in 1977 to $320 million in 1981. Total expenditures by the industry have, for the most part, just kept pace with inflation. Proportionally, industry accounted for 33% of all forest management expenditures in 1977 and 26% in 1981. This proportional decline is due largely to greater participation by the public sector in resource access and protection. The industry actually increased its share of expenditures on 'other forestry' activities from 15% of the total in 1977 to 26% in 1981.

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APPENDICES

APPENDIX 1

FOREST MANAGEMENT EXPENDITURE CATEGORIES

GOVERNMENT

Activity	Component	Elements
Silviculture	regeneration	planting--bareroot; planting--containers; seeding--direct; seeding with site preparation; scarification; strip cutting, shelterwood cutting; clearcutting
	tending	cleaning--manual; cleaning--chemical, aerial; cleaning--chemical, ground; cleaning--mechanical; thinning and improvement cuts; pruning; fertilization, cultivation, drainage
	site preparation	site preparation--mechanical; site preparation--chemical; site preparation--prescribed burn
	marking	marking--for regeneration; marking--for tending; marking--for site preparation
	silvicultural support	seed collection; tree improvement; stock production--container and bareroot; seed plant operations
Protection	fire	
	pests	
Resource access		road, bridges (capital and/or maintenance)
Inventory		photography, interpretation, inventory cruising, compilation, drafting
Research		total research expenditures in support of forest management
Timber management		operational cruising, cut and postcut inspections, management planning
Administration		total administration expenditures in support of the above forest management expenditures
Federal-provincial forestry agreements[a]		expenditures only in support of forest management programs

INDUSTRY

Activity	Component	Elements
Regeneration	site preparation for natural regeneration	- scarification - prescribed burning - chemical - other
	site preparation for artificial regeneration	- scarification - prescribed burning - chemical - other
	artificial regeneration	- planting bare root - planting containers - seed
	modified cutting for regeneration	
	silviculture support	- regeneration and survival surveys - tree improvement
Stand tending		- cleaning manual - cleaning chemical (aerial) - cleaning chemical (ground) - precommercial thinning and spacing - commercial thinning - pruning - fertilization - cultivation - drainage
Forest protection	fire	- direct cost for prevention - direct cost for suppression - shared cost assessment - area protection charges
	insect and/or disease control	- direct cost - shared assessment - area protection charges
Forest access	road construction	
Other forestry	forest inventory forest research administration in support of forest management other expenditures	

GOVERNMENT AND INDUSTRY

Activity[b]	Public[c]	Industry[d]
Silviculture	silviculture	regeneration stand tending
Protection	protection	forest protection
Access	resource access	forest access
Research	research	
Other	inventory timber management administration	other forestry

[a] Expenditures made under federal-provincial agreements were assigned to the above activities.
[b] Forest management activities as used for summary purposes in tables 11-15.
[c] Government forest management activity assignment for summary purposes.
[d] Industry forest management activity assignment for summary purposes.

APPENDIX 2

FOREST MANAGEMENT EXPENDITURES BY GOVERNMENT

NEWFOUNDLAND

Distribution of expenditures on forest management by source and activity, 1979/80

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
				$000			
Silviculture	-	61.7	-	555.3	61.7	555.3	617.0
Protection	3,867.0	68.2	-	613.8	3,935.2	613.8	4,549.0
Resource access	330.0	270.0	-	2,430.0	600.0	2,430.0	3,030.0
Inventory	-	88.2	-	793.8	88.2	793.8	882.0
Research	-	-	2,076.5[c]	-	-	2,076.5	2,076.5
Timber management	580.0	7.5	-	67.5	587.5	67.5	655.0
Administration and other	1,636.0	230.0	-	2,070.0	1,866.0	2,070.0	3,936.0
Total[b]	6,413.0	725.6	2,076.5	6,530.4	7,138.6	8,606.9	15,745.5

[a] Canada-Newfoundland Forestry Subsidiary Agreement
[b] Totals may not be precise because figures were rounded.
[c] Research expenditures by Newfoundland Forest Research Centre, Canadian Forestry Service, Department of the Environment, St. John's, Newfoundland

Source: Department of Forest Resources and Lands
Department of Regional Economic Expansion
Canadian Forestry Service, Department of the Environment

NEWFOUNDLAND

Distribution of expenditures on forest management by source and activity, 1980/81

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
				$000			
Silviculture	-	152.0	-	1,368.0	152.0	1,368.0	1,520.0
Protection	3,567.0	10.4	-	93.6	3,577.4	93.6	3,671.0
Resource access	350.0	80.0	-	720.0	430.0	720.0	1,150.0
Inventory	740.0	12.8	-	115.2	752.8	115.2	868.0
Research	23.0	3.2	2,712.3[c]	28.8	26.2	2,741.1	2,767.3
Timber management	450.0	11.0	-	99.0	461.0	99.0	560.0
Administration and other	5,575.0	.6	-	5.4	5,575.6	5.4	5,581.0
Total[b]	10,705.0	270.0	2,712.3	2,430.0	10,975.0	5,142.3	16,117.3

[a] Canada-Newfoundland Forestry Subsidiary Agreement
[b] Totals may not be precise because figures were rounded.
[c] Research expenditures by Newfoundland Forest Research Centre, Canadian Forestry Service, Department of the Environment, St. John's, Newfoundland

Source: Department of Forest Resources and Lands
Department of Regional Economic Expansion
Canadian Forestry Service, Department of the Environment

NEWFOUNDLAND

Distribution of expenditures on forest management by source and activity, 1981/82

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
	$000						
Silviculture	-	230.2	-	2,071.8	230.2	2,071.8	2,302.0
Protection	4,550.0	12.8	-	115.2	4,562.8	115.2	4,678.0
Resource access	410.0	220.0	-	1,980.0	630.0	1,980.0	2,610.0
Inventory	570.0	32.5	-	292.5	602.5	292.5	895.0
Research	25.0	59.0	2,774.3[c]	531.0	84.0	3,305.3	3,389.3
Timber management	382.0	37.5	-	337.5	419.5	337.5	757.0
Administration and other	6,762.0	5.2	-	46.8	6,767.2	46.8	6,814.0
Total[b]	12,699.0	597.2	2,774.3	5,374.8	13,296.2	8,149.1	21,445.3

[a] Canada-Newfoundland Forestry Subsidiary Agreement
[b] Totals may not be precise because figures were rounded.
[c] Research expenditures by Newfoundland Forest Research Centre, Canadian Forestry Service, Department of the Environment, St. John's, Newfoundland

Source: Department of Forest Resources and Lands
Department of Regional Economic Expansion
Canadian Forestry Service, Department of the Environment

PRINCE EDWARD ISLAND

Distribution of expenditures on forest management by source and activity, 1979/80

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
				$000			
Silviculture	-	340.0	-	962.0	340.0	962.0	1,302.0
Protection	-	50.0	-	-	50.0	-	50.0
Resource access	-	23.0	-	66.0	23.0	66.0	89.0
Inventory	-	-	-	-	-	-	-
Research	-	22.8	-	65.2	22.8	65.2	88.0
Timber management	-	35.3	-	100.7	35.3	100.7	136.0
Administration and other	-	78.9	-	223.1	78.9	223.1	302.0
Total[b]	-	550.0	-	1,417.0	550.0	1,417.0	1,967.0

[a] Comprehensive Rural Development Program
[b] Totals may not be precise because figures were rounded.

Source: Department of Agriculture and Forestry

PRINCE EDWARD ISLAND

Distribution of expenditures on forest management by source and activity, 1980/81

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
				$000			
Silviculture	-	535.8	-	1,187.2	535.8	1,187.2	1,723.0
Protection	-	51.0	-	70.0	51.0	70.0	121.0
Resource access	-	24.5	-	47.5	24.5	47.5	72.0
Inventory	-	95.8	-	186.2	95.8	186.2	282.0
Research	-	80.9	-	157.1	80.9	157.1	238.0
Timber management	-	50.0	-	97.0	50.0	97.0	147.0
Administration and other	-	152.0	-	275.0	152.0	275.0	427.0
Total[b]	-	990.0	-	2,020.0	990.0	2,020.0	3,010.0

[a] Comprehensive Rural Development Program
[b] Totals may not be precise because figures were rounded.

Source: Department of Agriculture and Forestry

PRINCE EDWARD ISLAND

Distribution of expenditures on forest management by source and activity, 1981/82

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
				$000			
Silviculture	-	638.0	-	1,046.0	638.0	1,046.0	1,684.0
Protection	-	70.0	-	-	70.0	-	70.0
Resource access	-	28.0	-	57.0	28.0	57.0	85.0
Inventory	-	96.0	-	184.0	96.0	184.0	280.0
Research	-	114.0	-	202.0	114.0	202.0	316.0
Timber management	-	68.0	-	125.0	68.0	125.0	193.0
Administration and other	-	189.0	-	332.0	189.0	332.0	521.0
Total[b]	-	1,203.0	-	1,946.0	1,203.0	1,946.0	3,149.0

[a] Comprehensive Rural Development Program
[b] Totals may not be precise because figures were rounded.

Source: Department of Agriculture and Forestry

NOVA SCOTIA

Distribution of expenditures on forest management by source and activity, 1979/80

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
	$000						
Silviculture	98.0	411.0	-	1,643.0	509.0	1,643.0	2,152.0
Protection	2,900.0	-	-	-	2,900.0	-	2,900.0
Resource access	634.0	333.0	-	1,333.0	967.0	1,333.0	2,300.0
Inventory	462.0	38.0	-	38.0	500.0	38.0	538.0
Research	221.0	40.0	-	39.0	261.0	39.0	300.0
Timber management	940.0	-	-	-	940.0	-	940.0
Administration and other	2,200.0	-	-	-	2,200.0	-	2,200.0
Total[b]	7,455.0	822.0	-	3,053.0	8,277.0	3,053.0	11,330.0

[a] Canada-Nova Scotia Forestry Subsidiary Agreement
[b] Totals may not be precise because figures were rounded.

Source: Department of Lands and Forests
Department of Regional Economic Expansion

NOVA SCOTIA

Distribution of expenditures on forest management by source and activity, 1980/81

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
	$000						
Silviculture	244.0	577.0	-	2,307.0	821.0	2,307.0	3,128.0
Protection	4,000.0	-	-	-	4,000.0	-	4,000.0
Resource access	706.0	429.0	-	1,665.0	1,135.0	1,665.0	2,800.0
Inventory	602.0	35.0	-	35.0	637.0	35.0	672.0
Research	296.0	2.0	-	2.0	298.0	2.0	300.0
Timber management	1,847.0	-	-	-	1,847.0	-	1,847.0
Administration and other	2,800.0	-	-	-	2,800.0	-	2,800.0
Total[b]	10,495.0	1,043.0	-	4,009.0	11,538.0	4,009.0	15,547.0

[a] Canada-Nova Scotia Forestry Subsidiary Agreement
[b] Totals may not be precise because figures were rounded.

Source: Department of Lands and Forests
Department of Regional Economic Expansion

NOVA SCOTIA

Distribution of expenditures on forest management by source and activity, 1981/82

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
	$000						
Silviculture	172.0	909.0	-	3,634.0	1,081.0	3,634.0	4,715.0
Protection	3,400.0	-	-	-	3,400.0	-	3,400.0
Resource access	970.0	316.0	-	1,286.0	1,286.0	1,260.0	2,546.0
Inventory	370.0	50.0	-	50.0	420.0	50.0	470.0
Research	240.0	30.0	-	30.0	270.0	30.0	300.0
Timber management	1,940.0	-	-	-	1,940.0	-	1,940.0
Administration and other	2,200.0	-	-	-	2,200.0	-	2,200.0
Total[b]	9,292.0	1,305.0	-	5,000.0	10,597.0	4,974.0	15,571.0

[a] Canada-Nova Scotia Forestry Subsidiary Agreement
[b] Totals may not be precise because totals were rounded.

Source: Department of Lands and Forests
Department of Regional Economic Expansion

NEW BRUNSWICK

Distribution of expenditures on forest management by source and activity, 1979/80

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
				$000			
Silviculture	550.0	1,142.1	-	4,568.6	1,692.1	4,568.6	6,260.7
Protection	6,640.0	-	-	-	6,640.0	-	6,640.0
Resource access	235.0	354.3	-	1,417.1	589.3	1,417.1	2,006.4
Inventory	200.0	44.1	-	176.5	244.1	176.5	420.6
Research	450.0	96.3	4,336.9[c]	385.2	546.3	4,722.1	5,268.4
Timber management	1,300.0	106.0	-	424.0	1,406.0	424.0	1,830.0
Administration and other	6,900.0	274.9	-	1,099.8	7,174.9	1,099.8	8,274.7
Total[b]	16,275.0	2,017.7	4,336.9	8,071.2	18,292.7	12,408.1	30,700.8

[a] Canada-New Brunswick Forestry Subsidiary Agreement
[b] Totals may not be precise because figures were rounded.
[b] Research expenditures by the Maritimes Forest Research Centre, Canadian Forestry Service, Department of the Environment, Fredericton, New Brunswick. The Centre services the provinces of New Brunswick, Nova Scotia and Prince Edward Island.

Source: Department of Natural Resources
Department of Regional Economic Expansion
Canadian Forestry Service, Department of the Environment

NEW BRUNSWICK

Distribution of expenditures on forest management by source and activity, 1980/81

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
	$000						
Silviculture	592.1	1,632.4	-	6,529.6	2,224.5	6,529.6	8,754.1
Protection	7,592.9	-	-	-	7,592.9	-	7,592.9
Resource access	425.9	158.4	-	633.7	584.3	633.7	1,218.0
Inventory	227.6	49.7	-	199.0	277.3	199.0	476.3
Research	501.8	30.9	5,035.4[c]	123.6	532.7	5,159.0	5,691.7
Timber management	1,404.9	-	-	-	1,404.9	-	1,404.9
Administration and other	8,611.9	193.7	-	774.6	8,805.6	774.6	9,580.2
Total[b]	19,357.1	2,065.1	5,035.4	8,260.5	21,422.2	13,295.9	34,718.1

[a] Canada-New Brunswick Forestry Subsidiary Agreement
[b] Totals may not be precise because figures were rounded.
[c] Research expenditures by the Maritimes Forest Research Centre, Canadian Forestry Service, Department of the Environment, Fredericton, New Brunswick. The Centre services the provinces of New Brunswick, Nova Scotia and Prince Edward Island.

Source: Department of Natural Resources
Department of Regional Economic Expansion
Canadian Forestry Service, Department of the Environment

NEW BRUNSWICK

Distribution of expenditures on forest management by source and activity, 1981/82

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
	$000						
Silviculture	1,178.4	1,931.6	-	7,726.5	3,110.0	7,726.5	10,836.5
Protection	11,285.7	-	-	-	11,285.7	-	11,285.7
Resource access	416.9	62.2	-	248.9	479.1	248.9	728.0
Inventory	703.1	34.4	-	137.5	737.5	137.5	875.0
Research	576.2	25.3	5,784.5[c]	101.0	601.5	5,885.5	6,487.0
Timber management	1,505.5	-	-	-	1,505.5	-	1,505.5
Administration and other	8,912.1	117.9	-	471.4	9,030.0	471.4	9,501.4
Total[b]	24,577.9	2,171.4	5,784.5	8,685.3	26,749.3	14,469.8	41,219.1

[a] Canada-New Brunswick Forestry Subsidiary Agreement
[b] Totals may not be precise because figures were rounded.
[c] Research expenditures by the Maritimes Forest Research Centre, Canadian Forestry Service, Department of the Environment, Fredericton, New Brunswick. The Centre services the provinces of New Brunswick, Nova Scotia and Prince Edward Island.

Source: Department of Natural Resources
Department of Regional Economic Expansion
Canadian Forestry Service, Department of the Environment

QUEBEC

Distribution of expenditures on forest management by source and activity, 1979/80

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
				$000			
Silviculture	8,713.0	7,726.0	-	11,583.0	16,439.0	11,583.0	28,022.0
Protection	15,511.0	-	-	-	15,511.0	-	15,511.0
Resource access	4,789.0	7,929.2	-	11,893.8	12,718.2	11,893.8	24,612.0
Inventory	3,393.0	-	-	-	3,393.0	-	3,393.0
Research	2,360.0	-	3,950.6[c]	-	2,360.0	3,950.6	6,310.6
Timber management	15,704.0	-	-	-	15,704.0	-	15,704.0
Administration and other	29,018.0	-	8,140.2[d]	-	29,018.0	8,140.2	37,158.2
Total[b]	79,488.0	15,655.2	12,090.8	23,476.8	95,143.2	35,567.6	130,710.8

[a] Canada-Quebec Forest Development Subsidiary Agreement
[b] Totals may not be precise because figures were rounded.
[c] Research expenditures by Laurentian Forest Research Centre, Canadian Forestry Service, Department of the Environment, Ste. Foy, Quebec
[d] Administrative expenditures by Canadian Forestry Service headquarters, excluding grants and contributions

Source: Ministère de l'Energie et des Ressources
Department of Regional Economic Expansion
Canadian Forestry Service, Department of the Environment

QUEBEC

Distribution of expenditures on forest management by source and activity, 1980/81

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
				$000			
Silviculture	15,866.0	6,911.6	-	10,367.4	22,777.6	10,367.4	33,145.0
Protection	17,143.0	-	-	-	17,143.0	-	17,143.0
Resource access	4.954.0	6,502.8	-	9,754.2	11,456.8	9,754.2	21,211.0
Inventory	3,342.0	-	-	-	3,342.0	-	3,342.0
Research	2,600.0	-	4,450.0[c]	-	2,600.0	4,450.0	7,050.0
Timber management	16,048.0	-	-	-	16,048.0	-	16,048.0
Administration and other	18,479.0	-	9,752.7[d]	-	18,479.0	9,752.7	28,231.7
Total[b]	78,432.0	13,414.4	14,202.7	20,121.6	91,846.4	34,324.3	126,170.7

[a] Canada-Quebec Forest Development Subsidiary Agreement
[b] Totals may not be precise because figures were rounded.
[c] Research expenditures by Laurentian Forest Research Centre, Canadian Forestry Service, Department of the Environment, Ste. Foy, Quebec
[d] Administrative expenditures by Canadian Forestry Service headquarters, excluding grants and contributions

Source: Ministère de l'Energie et des Ressources
Department of Regional Economic Expansion
Canadian Forestry Service, Department of the Environment

QUEBEC

Distribution of expenditures on forest management by source and activity, 1981/82

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
	$000						
Silviculture	21,095.0	7,591.2	-	11,386.8	28,686.2	11,386.8	40,073.0
Protection	20,513.0	-	-	-	20,513.0	-	20,513.0
Resource access	3,830.0	8,739.2	-	13,108.8	12,569.2	13,108.8	25,678.0
Inventory	3,911.0	-	-	-	3,911.0	-	3,911.0
Research	2,813.0	-	4,969.4[c]	-	2,813.0	4,969.4	7,782.4
Timber management	17,386.0	-	-	-	17,386.0	-	17,386.0
Administration and other	20,583.0	-	17,294.6[d]	-	20,583.0	17,294.6	37,877.6
Total[b]	90,131.0	16,330.4	22,264.0	24,495.6	106,461.4	46,759.6	153,221.0

[a] Canada-Quebec Forest Development Subsidiary Agreement
[b] Totals may not be precise because figures were rounded.
[c] Research expenditures by Laurentian Forest Research Centre, Canadian Forestry Service, Department of the Environment, Ste. Foy, Quebec
[d] Administrative expenditures by Canadian Forestry Service headquarters, excluding grants and contributions

Source: Ministère de l'Energie et des Ressources
Department of Regional Economic Expansion
Canadian Forestry Service, Department of the Environment

ONTARIO

Distribution of expenditures on forest management by source and activity, 1979/80

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
	$000						
Silviculture	40,951.4	448.6	-	448.6	41,400.0	448.6	41,848.6
Protection	30,000.0	-	-	-	30,000.0	-	30,000.0
Resource access	11,200.0	-	-	-	11,200.0	-	11,200.0
Inventory	1,300.0	-	-	-	1,300.0	-	1,300.0
Research	2,360.9	39.1	10,858.1[c]	39.1	2,400.0	10,897.2	13,297.2
Timber management	12,273.1	126.9	-	126.9	12,400.0	126.9	12,526.9
Administration and other	7,500.0	-	-	-	7,500.0	-	7,500.0
Total[b]	105,585.4	614.6	10,858.1	614.6	106,200.0	11,472.7	117,672.7

[a] Canada-Ontario Community and Rural Resource Development Subsidiary Agreement
Canada-Ontario Forest Management Subsidiary Agreement
Canada-Ontario Eastern Ontario Subsidiary Agreement
Canada-Ontario Northern Rural Development Subsidiary Agreement

[b] Totals may not be precise because figures were rounded.

[c] Research expenditures by the Great Lakes Forest Research Centre, Sault Ste. Marie, Ontario, Forest Pest Management Institute, Sault Ste. Marie, Ontario and the Petawawa National Forestry Institute, Chalk River, Ontario

Source: Ontario Ministry of Natural Resources
Department of Regional Economic Expansion
Canadian Forestry Service, Department of the Environment

ONTARIO

Distribution of expenditures on forest management by source and activity, 1980/81

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
	$000						
Silviculture	51,671.2	3,028.8	-	3,028.8	54,700.0	3,028.8	57,728.8
Protection	62,800.0	-	-	-	62,800.0	-	62,800.0
Resource access	13,611.5	2,988.5	-	2,988.5	16,600.0	2,988.5	19,588.5
Inventory	2,415.6	384.4	-	384.4	2,800.0	384.4	3,184.4
Research	2,500.7	699.3	12,724.0[c]	699.3	3,200.0	13,423.3	16,623.3
Timber management	14,469.1	130.9	-	130.9	14,600.0	130.9	14,730.9
Administration and other	7,577.1	222.9	-	222.9	7,800.0	222.9	8,022.9
Total[b]	155,045.2	7,454.8	12,724.0	7,454.8	162,500.0	20,178.8	182,678.8

[a] Canada-Ontario Community and Rural Resource Development Subsidiary Agreement
Canada-Ontario Forest Management Subsidiary Agreement
Canada-Ontario Eastern Ontario Subsidiary Agreement
Canada-Ontario Northern Rural Development Subsidiary Agreement

[b] Totals may not be precise because figures were rounded.

[c] Research expenditures by the Great Lakes Forest Research Centre, Sault Ste. Marie, Ontario, Forest Pest Management Institute, Sault Ste. Marie, Ontario, and the Petawawa National Forestry Institute, Chalk River, Ontario

Source: Ontario Ministry of Natural Resources
Department of Regional Economic Expansion
Canadian Forestry Service, Department of the Environment

ONTARIO

Distribution of expenditures on forest management by source and activity, 1981/82

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
				$000			
Silviculture	71,589.9	3,810.1	-	3,810.1	75,400.0	3,810.1	79,210.1
Protection	47,900.0	-	-	-	47,900.0	-	47,900.0
Resource access	14,583.1	5,316.9	-	5,316.9	19,900.0	5,316.9	25,216.9
Inventory	2,333.2	666.8	-	666.8	3,000.0	666.8	3,666.8
Research	2,830.5	569.5	13,503.5[c]	569.5	3,400.0	14,073.0	17,473.0
Timber management	16,040.6	59.4	-	59.4	16,100.0	59.4	16,159.4
Administration and other	10,270.1	329.9	-	329.9	10,600.0	329.9	10,929.9
Total[b]	165,547.2	10,752.6	13,503.5	10,752.6	176,300.0	24,256.1	200,556.1

[a] Canada-Ontario Community and Rural Resource Development Subsidiary Agreement
Canada-Ontario Forest Management Subsidiary Agreement
Canada-Ontario Eastern Ontario Subsidiary Agreement
Canada-Ontario Northern Rural Development Subsidiary Agreement

[b] Totals may not be precise because figures were rounded.

[c] Research expenditures by the Great Lakes Forest Research Centre, Sault Ste. Marie, Ontario, Forest Pest Management Institute, Sault Ste. Marie, Ontario, and the Petawawa National Forestry Institute, Chalk River, Ontario

Source: Ontario Ministry of Natural Resources
Department of Regional Economic Expansion
Canadian Forestry Service, Department of the Environment

MANITOBA

Distribution of expenditures on forest management by source and activity, 1979/80

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
	$000						
Silviculture	961.4	456.2	-	684.3	1,417.6	684.3	2,101.9
Protection	5,390.8	233.1	-	349.6	5,623.9	349.6	5,973.5
Resource access	437.0	189.7	-	284.5	626.7	284.5	911.2
Inventory	513.2	-	-	-	513.2	-	513.2
Research	-	-	-	-	-	-	-
Timber management	634.0	2.7	-	4.1	636.7	4.1	640.8
Administration and other	674.6	-	-	-	674.6	-	674.6
Total[b]	8,611.0	881.7	-	1,322.6	9,492.7	1,322.5	10,815.3

[a] Canada-Manitoba Northlands Subsidiary Agreement
[b] Totals may not be precise because figures have been rounded.

Source: Department of Natural Resources, Forestry Branch
Department of Regional Economic Expansion

MANITOBA

Distribution of expenditures on forest management by source and activity, 1980/81

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
	$000						
Silviculture	1,203.8	545.4	-	818.1	1,749.2	818.1	2,567.3
Protection	13,736.6	270.3	-	405.5	14,006.9	405.5	14,412.4
Resource access	639.6	198.9	-	298.4	838.5	298.4	1,136.9
Inventory	774.0	81.3	-	121.9	855.3	121.9	977.2
Research	-	-	-	-	-	-	-
Timber management	765.4	53.4	-	80.2	818.8	80.2	899.0
Administration and other	706.7	-	-	-	706.7	-	706.7
Total[b]	17,826.1	1,149.3	-	1,724.1	18,975.4	1,724.1	20,699.5

[a] Canada-Manitoba Northlands Subsidiary Agreement
[b] Totals may not be precise because figures have been rounded.

Source: Department of Natural Resources, Forestry Branch
Department of Regional Economic Expansion

MANITOBA

Distribution of expenditures on forest management by source and activity, 1981/82

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
	$000						
Silviculture	1,305.2	-	-	-	1,305.2	-	1,305.2
Protection	11,595.7	-	-	-	11,595.7	-	11,595.7
Resource access	600.0	-	-	-	600.0	-	600.0
Inventory	652.8	-	-	-	652.8	-	652.8
Research	-	-	-	-	-	-	-
Timber management	861.9	-	-	-	861.9	-	861.9
Administration and other	738.0	-	-	-	738.0	-	738.0
Total[b]	15,753.6	-	-	-	15,753.6	-	15,753.6

[a] Canada-Manitoba Northlands Subsidiary Agreement
[b] Totals may not be precise because figures have been rounded.

Source: Department of Natural Resources, Forestry Branch
Department of Regional Economic Expansion

SASKATCHEWAN

Distribution of expenditures on forest management by source and activity, 1979/80

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
	$000						
Silviculture	2,189.7	793.7	-	793.7	2,983.4	793.7	3,777.1
Protection	5,421.8	-	-	-	5,421.8	-	5,421.8
Resource access	352.6	1,829.2	-	1,829.2	2,181.8	1,829.2	4,011.0
Inventory	890.9	359.3	-	359.3	1,250.2	359.3	1,609.5
Research	-	-	-	-	-	-	-
Timber management	347.8	262.1	-	262.1	609.9	262.1	872.0
Administration and other	719.2	21.9	-	21.9	741.1	21.9	763.0
Total[b]	9,922.0	3,266.2	-	3,266.2	13,188.2	3,266.2	16,454.4

[a] Canada-Saskatchewan Forest Development Subsidiary Agreement
[b] Totals may not be precise because figures were rounded.

Source: Department of Parks and Renewable Resources
Department of Regional Economic Expansion

SASKATCHEWAN

Distribution of expenditures on forest management by source and activity, 1980/81

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
	$000						
Silviculture	2,756.2	1,036.0	-	1,036.0	3,792.2	1,036.0	4,828.2
Protection	19,110.6	-	-	-	19,110.6	-	19,110.6
Resource access	359.4	985.4	-	985.4	1,344.8	985.4	2,330.2
Inventory	867.8	589.9	-	589.9	1,457.7	589.9	2,047.6
Research	-	-	-	-	-	-	-
Timber management	401.4	269.0	-	269.0	670.4	269.0	939.4
Administration and other	1,031.6	70.3	-	70.3	1,101.9	70.3	1,172.2
Total[b]	24,527.0	2,950.6	-	2,950.6	27,477.6	2,950.6	30,428.2

[a] Canada-Saskatchewan Forest Development Subsidiary Agreement
[b] Totals may not be precise because figures were rounded.

Source: Department of Parks and Renewable Resources
Department of Regional Economic Expansion

SASKATCHEWAN

Distribution of expenditures on forest management by source and activity, 1981/82

Activity	Province		Federal		Total		
	Actual	Agreement[a]	Actual	Agreement[a]	Provincial	Federal	Total[b]
	$000						
Silviculture	2,199.2	531.2	-	531.2	2,730.4	531.2	3,261.6
Protection	26,361.9	-	-	-	26,361.9	-	26,361.9
Resource access	460.2	1,079.6	-	1,079.6	1,539.8	1,079.6	2,619.4
Inventory	980.1	507.6	-	507.6	1,487.7	507.6	1,995.3
Research	-	-	-	-	-	-	-
Timber management	480.7	221.5	-	221.5	702.2	221.5	923.7
Administration and other	1,044.4	114.1	-	114.1	1,158.5	114.1	1,272.6
Total[b]	31,526.5	2,454.0	-	2,454.0	33,980.5	2,454.0	36,434.5

[a] Canada-Saskatchewan Forest Development Subsidiary Agreement
[b] Totals may not be precise because figures were rounded.

Source: Department of Parks and Renewable Resources
Department of Regional Economic Expansion

ALBERTA

Distribution of expenditures on forest management by source and activity, 1979/80

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total[a]
				$000			
Silviculture	6,760.5	-	-	-	6,760.5	-	6,760.5
Protection	18,410.1	-	-	-	18,410.1	-	18,410.1
Resource access	930.1	-	-	-	930.1	-	930.1
Inventory	979.0	-	-	-	979.0	-	979.0
Research	60.1	-	3,594.5[b]	-	60.1	3,594.5	3,654.6
Timber management	388.8	-	-	-	388.8	-	388.8
Administration and other	17,897.0	-	-	-	17,897.0	-	17,897.0
Total[a]	45,425.5	-	3,594.5	-	45,425.5	3,594.5	49,020.0

[a] Totals may not be precise because figures were rounded.
[b] Research expenditures by the Northern Forest Research Centre, Canadian Forestry Service, Department of the Environment, Edmonton, Alberta. The Centre services Alberta, Saskatchewan, Manitoba and the Northwest Territories.

Source: Department of Energy and Natural Resources
Canadian Forestry Service, Department of the Environment

ALBERTA

Distribution of expenditures on forest management by source and activity, 1980/81

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total[a]
				$000			
Silviculture	8,229.7	-	-	-	8,229.7	-	8,229.7
Protection	45,170.0	-	-	-	45,170.0	-	45,170.0
Resource access	2,698.5	-	-	-	2,698.5	-	2,698.5
Inventory	496.8	-	-	-	496.8	-	496.8
Research	837.4	-	4,311.9[b]	-	837.4	4,311.9	5,149.3
Timber management	412.6	-	-	-	412.6	-	412.6
Administration and other	21,169.4	-	-	-	21,169.4	-	21,169.4
Total[b]	79,014.4	-	4,311.9	-	79,014.4	4,311.9	83,326.3

[a] Totals may not be precise because figures were rounded.
[b] Research expenditures by the Northern Forest Research Centre, Canadian Forestry Service, Department of the Environment, Edmonton, Alberta. The Centre services Alberta, Saskatchewan, Manitoba, and the Northwest Territories.

Source: Department of Energy and Natural Resources
Canadian Forestry Service, Department of the Environment

ALBERTA

Distribution of expenditures on forest management by source and activity, 1981/82[a]

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total[b]
	$000						
Silviculture	9,845.0	-	-	-	9,845.0	-	9,845.0
Protection	76,124.0	-	-	-	76,124.0	-	76,124.0
Resource access	3,226.0	-	-	-	3,226.0	-	3,226.0
Inventory	812.0	-	-	-	812.0	-	812.0
Research	758.0	-	4,902.6[c]	-	758.0	4,902.6	5,660.6
Timber management	503.0	-	-	-	503.0	-	503.0
Administration and other	25,000.0	-	-	-	25,000.0	-	25,000.0
Total[b]	116,268.0	-	4,902.6	-	116,268.0	4,902.6	121,170.6

[a] Estimates
[b] Totals may not be precise because figures were rounded.
[c] Research expenditures by the Northern Forest Research Centre, Canadian Forestry Service, Department of the Environment, Edmonton, Alberta. The Centre services Alberta, Saskatchewan, Manitoba and the Northwest Territories.

Source: Department of Energy and Natural Resources
Canadian Forestry Service, Department of the Environment

BRITISH COLUMBIA

Distribution of expenditures on forest management by source and activity, 1979/80[a]

Activity	Province		Federal		Total		
	Actual	Agreement[b]	Actual	Agreement[b]	Provincial	Federal	Total[c]
	$000						
Silviculture	38,301.0	5,700.0	-	5,700.0	44,001.0	5,700.0	49,701.0
Protection	37,302.0	-	-	-	37,302.0	-	37,302.0
Resource access	42,477.0	-	-	-	42,477.0	-	42,477.0
Inventory	5,414.0	-	-	-	5,414.0	-	5,414.0
Research	4,256.0	-	4,730.2[d]	-	4,256.0	4,730.2	8,986.2
Timber management	10,392.0	-	-	-	10,392.0	-	10,392.0
Administration and other	42,859.0	-	-	-	42,859.0	-	42,859.0
Total[c]	181,001.0	5,700.0	4,730.2	5,700.0	186,701.0	10,430.2	197,131.2

[a] Expenditures exclude range and recreation expenditures by the Ministry of Forests.
[b] Canada-British Columbia Intensive Forest Management Subsidiary Agreement
[c] Totals may not be precise because figures were rounded.
[d] Research expenditures by the Pacific Forest Research Centre, Canadian Forestry Service, Department of the Environment, Victoria, British Columbia. The Centre services the province of British Columbia and the Yukon Territory.

Source: Ministry of Forests
Department of Regional Economic Expansion
Canadian Forestry Service, Department of the Environment

BRITISH COLUMBIA

Distribution of expenditures on forest management by source and activity, 1980/81[a]

Activity	Province		Federal		Total		
	Actual	Agreement[b]	Actual	Agreement[b]	Provincial	Federal	Total[c]
	$000						
Silviculture	60,011.0	5,812.0	-	5,812.0	65,823.0	5,812.0	71,635.0
Protection	30,013.0	-	-	-	30,013.0	-	30,013.0
Resource access	60,118.0	-	-	-	60,118.0	-	60,118.0
Inventory	5,939.0	-	-	-	5,939.0	-	5,939.0
Research	8,108.0	-	5,468.3[d]	-	8,108.0	5,468.3	13,576.3
Timber management	23,459.0	-	-	-	23,459.0	-	23,459.0
Administration and other	63,154.0	-	-	-	63,154.0	-	63,154.0
Total[c]	250,802.0	5,812.0	5,468.3	5,812.0	256,614.0	11,280.3	267,894.3

[a] Expenditures exclude range and recreation expenditures by the Ministry of Forests.
[b] Canada-British Columbia Intensive Forest Management Subsidiary Agreement
[c] Totals may not be precise because figures were rounded.
[d] Research expenditures by the Pacific Forest Research Centre, Canadian Forestry Service, Department of the Environment, Victoria, British Columbia. The Centre services the province of British Columbia and the Yukon Territory.

Source: Ministry of Forests
Department of Regional Economic Expansion
Canadian Forestry Service, Department of the Environment

BRITISH COLUMBIA

Distribution of expenditures on forest management by source and activity, 1981/82[a]

Activity	Province		Federal		Total		
	Actual	Agreement[b]	Actual	Agreement[b]	Provincial	Federal	Total[c]
	$000						
Silviculture	69,073.0	3,488.0	-	3,488.0	72,561.0	3,488.0	76,049.0
Protection	60,959.0	-	-	-	60,959.0	-	60,959.0
Resource access	39,258.0	-	-	-	39,258.0	-	39,258.0
Inventory	9,080.0	-	-	-	9,080.0	-	9,080.0
Research	8,433.0	-	6,536.4[d]	-	8,433.0	6,536.4	14,969.4
Timber management	32,100.0	-	-	-	32,100.0	-	32,100.0
Administration and other	62,480.0	-	-	-	62,480.0	-	62,480.0
Total[c]	281,383.0	3,488.0	6,536.4	3,488.0	284,871.0	10,024.4	294,895.4

[a] Expenditures exclude range and recreation expenditures by the Ministry of Forests.
[b] Canada-British Columbia Intensive Forest Management Subsidiary Agreement
[c] Totals may not be precise because figures were rounded.
[d] Research expenditures by the Pacific Forest Research Centre, Canadian Forestry Service, Department of the Environment, Victoria, British Columbia. The Centre services the province of British Columbia and the Yukon Territory.

Source: Ministry of Forests
Department of Regional Economic Expansion
Canadian Forestry Service, Department of the Environment

YUKON TERRITORY and NORTHWEST TERRITORIES

Distribution of expenditures on forest management by source and activity, 1979/80

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total[a]
	$000						
Silviculture	-	-	-	-	-	-	-
Protection	-	-	10,202	-	-	10,202	10,202
Resource access	-	-	-	-	-	-	-
Inventory	-	-	-	-	-	-	-
Research	-	-	-	-	-	-	-
Timber management	-	-	1,986	-	-	1,986	1,986
Administration and other	-	-	-	-	-	-	-
Total[a]	-	-	12,188	-	-	12,188	12,188

[a] Totals may not be precise because figures were rounded.

Source: Department of Indian and Northern Affairs

YUKON TERRITORY and NORTHWEST TERRITORIES

Distribution of expenditures on forest management by source and activity, 1980/81

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total[a]
	$000						
Silviculture	-	-	-	-	-	-	-
Protection	-	-	20,567	-	-	20,567	20,567
Resource access	-	-	-	-	-	-	-
Inventory	-	-	-	-	-	-	-
Research	-	-	-	-	-	-	-
Timber management	-	-	2,003	-	-	2,003	2,003
Administration and other	-	-	-	-	-	-	-
Total[a]	-	-	22,570	-	-	22,570	22,570

[a] Totals may not be precise because figures were rounded.

Source: Department of Indian and Northern Affairs

YUKON TERRITORY and NORTHWEST TERRITORIES

Distribution of expenditures on forest management by source and activity, 1981/82

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total[a]
				$000			
Silviculture	-	-	-	-	-	-	-
Protection	-	-	22,355	-	-	22,355	22,355
Resource access	-	-	-	-	-	-	-
Inventory	-	-	-	-	-	-	-
Research	-	-	-	-	-	-	-
Timber management	-	-	2,360	-	-	2,360	2,360
Administration and other	-	-	-	-	-	-	-
Total[a]	-	-	24,715	-	-	24,715	24,715

[a] Totals may not be precise because figures were rounded.

Source: Department of Indian and Northern Affairs

APPENDIX 3

FOREST MANAGEMENT EXPENDITURES BY INDUSTRY

CANADA

Distribution of industry expenditures on forest management by source and province, 1977

Province	Gross expenditure	Recovered from gov't	Net industry
	$000		
Newfoundland	3,083	1,637	1,446
Nova Scotia	5,916	644	5,272
New Brunswick	11,196	432	10,764
Quebec	43,597	203	43,394
Ontario	31,075	1,187	29,888
Manitoba	1,046	--	1,046
Saskatchewan	3,090	333	2,757
Alberta	13,076	115	12,961
British Columbia	176,791	63,097	113,694
TOTAL	288,870	67,648	221,222

Source: Reed and Associates Ltd. (1978)

CANADA

Distribution of industry expenditures on forest management by source and activity, 1977

Activity	Gross expenditure	Recovered from gov't	Net industry
		$000	
Regeneration	19,042	6,474	12,568
Stand tending	6,059	2,338	3,721
Forest protection	20,128	1,377	18,751
Forest access	215,437	54,447	160,990
Other forestry	28,204	3,012	25,192
TOTAL	288,870	67,648	221,222

Source: Reed and Associates Ltd. (1978)

CANADA

Distribution of industry expenditures on forest management by source and province, 1979

Province	Gross expenditure	Recovered from gov't	Net industry
	$000		
Newfoundland	3,759	212	3,547
Nova Scotia	6,370	1,104	5,266
New Brunswick	15,648	929	14,719
Quebec	51,793	3,456	48,337
Ontario	30,025	972	29,053
Manitoba	1,792	236	1,556
Saskatchewan	3,102	--	3,102
Alberta	8,488	--	8,488
British Columbia	218,844	54,000	164,844
TOTAL	339,821	60,909	278,912

Source Reed and Associates Ltd. (1978)

CANADA

Distribution of industry expenditures on forest management by source and activity, 1979

Activity	Gross expenditure	Recovered from gov't	Net industry
	$000		
Regeneration	31,807	15,733	16,074
Stand tending	11,411	5,185	6,226
Forest protection	22,192	1,032	21,160
Forest access	228,065	34,738	193,327
Other forestry	46,346	4,221	42,125
TOTAL	339,821	60,909	278,912

Source: Reed and Associates Ltd. (1980)

CANADA

Distribution of industry expenditures on forest management by source and province, 1981

Province	Gross expenditure	Recovered from gov't	Net industry
	$000		
Newfoundland	8,342	524	7,818
Nova Scotia	13,051	2,621	10,430
New Brunswick	21,721	1,019	20,702
Quebec	72,028	16,872	55,156
Ontario	45,112	16,109	29,003
Manitoba	2,789	426	2,363
Saskatchewan	4,795	--	4,795
Alberta	10,328	114	10,214
British Columbia	246,062	66,956	179,106
TOTAL	424,228	104,641	319,587

Source: Canadian Pulp and Paper Association

CANADA

Distribution of industry expenditures on forest management by source and activity, 1981

Activity	Gross expenditure	Recovered from gov't	Net industry
		$000	
Regeneration	55,672	25,200	30,472
Stand tending	24,141	11,571	12,570
Forest protection	27,304	872	26,432
Forest access	224,646	61,864	162,782
Other forestry	92,465	5,134	87,331
TOTAL	424,228	104,641	319,587

Source: Canadian Pulp and Paper Association

NEWFOUNDLAND

Distribution of industry expenditures on forest management by source and activity, 1977

Activity	Gross expenditure	Recovered from gov't	Net industry
	$000		
Regeneration	--	--	--
Stand tending	359	359	--
Forest protection	262	17	245
Forest access	1,877	1,261	616
Other forestry	585	--	585
TOTAL	3,083	1,637	1,446

Source: Reed and Associates Ltd. (1978)

NEWFOUNDLAND

Distribution of industry expenditures on forest management by source and activity, 1979

Activity	Gross expenditure	Recovered from gov't	Net industry
		$000	
Regeneration	62	21	41
Stand tending	187	139	48
Forest protection	1,151	19	1,132
Forest access	1,153	29	1,124
Other forestry	1,206	4	1,202
TOTAL	3,759	212	3,547

Source: Reed and Associates Ltd. (1980)

NEWFOUNDLAND

Distribution of industry expenditures on forest management by source and activity, 1981

Activity	Gross expenditure	Recovered from gov't	Net industry
	$000		
Regeneration	516	105	411
Stand tending	1,684	344	1,340
Forest protection	2,949	10	2,939
Forest access	2,197	--	2,197
Other forestry	996	65	931
TOTAL	8,342	524	7,818

Source: Canadian Pulp and Paper Association

NOVA SCOTIA

Distribution of industry expenditures on forest management by source and activity, 1977

Activity	Gross expenditure	Recovered from gov't	Net industry
	$000		
Regeneration	745	80	665
Stand tending	725	145	580
Forest protection	50	5	45
Forest access	3,885	412	3,473
Other forestry	511	2	509
TOTAL	5,916	644	5,272

Source: Reed and Associates Ltd. (1978)

NOVA SCOTIA

Distribution of industry expenditures on forest management by source and activity, 1979

Activity	Gross expenditure	Recovered from gov't	Net industry
	$000		
Regeneration	1,460	406	1,054
Stand tending	1,135	303	832
Forest protection	90	--	90
Forest access	3,160	348	2,812
Other forestry	525	47	478
TOTAL	6,370	1,104	5,266

Source: Reed and Associates Ltd. (1980)

NOVA SCOTIA

Distribution of industry expenditures on forest management by source and activity, 1981

Activity	Gross expenditure	Recovered from gov't	Net industry
		$000	
Regeneration	3,143	735	2,408
Stand tending	2,196	601	1,595
Forest protection	335	--	335
Forest access	3,723	190	3,533
Other forestry	3,654	1,095	2,559
TOTAL	13,051	2,621	10,430

Source: Canadian Pulp and Paper Association

NEW BRUNSWICK

Distribution of industry expenditures on forest management by source and activity, 1977

Activity	Gross expenditure	Recovered from gov't	Net industry
	$000		
Regeneration	2,983	243	2,740
Stand tending	4	--	4
Forest protection	3,695	6	3,689
Forest access	3,002	183	2,819
Other forestry	1,512	--	1,512
TOTAL	11,196	432	10,764

Source: Reed and Associates Ltd. (1978)

NEW BRUNSWICK

Distribution of industry expenditures on forest management by source and activity, 1979

Activity	Gross expenditure	Recovered from gov't	Net industry
		$000	
Regeneration	4,072	371	3,701
Stand tending	522	81	441
Forest protection	2,974	263	2,711
Forest access	3,608	184	3,424
Other forestry	4,472	30	4,442
TOTAL	15,648	929	14,719

Source: Reed and Associates Ltd. (1980)

NEW BRUNSWICK

Distribution of industry expenditures on forest management by source and activity, 1981

Activity	Gross expenditure	Recovered from gov't	Net industry
		$000	
Regeneration	6,976	856	6,120
Stand tending	1,109	151	958
Forest protection	4,278	12	4,266
Forest access	2,233	--	2,233
Other forestry	7,125	--	7,125
TOTAL	21,721	1,019	20,702

Source: Canadian Pulp and Paper Association

QUEBEC

Distribution of industry expenditures on forest management by source and activity, 1977

Activity	Gross expenditure	Recovered from gov't	Net industry
	$000		
Regeneration	1,229	53	1,176
Stand tending	741	97	644
Forest protection	9,145	34	9,111
Forest access	24,791	19	24,772
Other forestry	7,691	--	7,691
TOTAL	43,597	203	43,394

Source: Reed and Associates Ltd. (1978)

QUEBEC

Distribution of industry expenditures on forest management by source and activity, 1979

Activity	Gross expenditure	Recovered from gov't	Net industry
	$000		
Regeneration	1,609	125	1,484
Stand tending	849	146	703
Forest protection	7,674	--	7,674
Forest access	32,246	3,145	29,101
Other forestry	9,415	40	9,375
TOTAL	51,793	3,456	48,337

Source: Reed and Associates Ltd. (1980)

QUEBEC

Distribution of industry expenditures on forest management by source and activity, 1981

Activity	Gross expenditure	Recovered from gov't	Net industry
	$000		
Regeneration	2,744	503	2,241
Stand tending	892	81	811
Forest protection	9,433	14	9,419
Forest access	43,398	15,425	27,973
Other forestry	15,561	849	14,712
TOTAL	72,028	16,872	55,156

Source: Canadian Pulp and Paper Association

ONTARIO

Distribution of industry expenditures on forest management by source and activity, 1977

Activity	Gross expenditure	Recovered from gov't	Net industry
	$000		
Regeneration	1,153	428	725
Stand tending	39	--	39
Forest protection	2,552	6	2,546
Forest access	23,850	715	23,135
Other forestry	3,481	38	3,443
TOTAL	31,075	1,187	29,888

Source: Reed and Associates Ltd. (1978)

ONTARIO

Distribution of industry expenditures on forest management by source and activity, 1979

Activity	Gross expenditure	Recovered from gov't	Net industry
	$000		
Regeneration	838	405	433
Stand tending	35	13	22
Forest protection	3,443	--	3,443
Forest access	21,234	413	20,821
Other forestry	4,475	141	4,334
TOTAL	30,025	972	29,053

Source: Reed and Associates Ltd. (1980)

ONTARIO

Distribution of industry expenditures on forest management by source and activity, 1981

Activity	Gross expenditure	Recovered from gov't	Net industry
		$000	
Regeneration	2,593	1,533	1,060
Stand tending	188	108	80
Forest protection	4,399	38	4,361
Forest access	32,851	14,430	18,421
Other forestry	5,081	--	5,081
TOTAL	45,112	16,109	29,003

Source: Canadian Pulp and Paper Association

MANITOBA

Distribution of industry expenditures on forest management by source and activity, 1977

Activity	Gross expenditure	Recovered from gov't	Net industry
	$000		
Regeneration	--	--	--
Stand tending	--	--	--
Forest protection	40	--	40
Forest access	757	--	757
Other forestry	249	--	249
TOTAL	1,046	--	1,046

Source: Reed and Associates Ltd. (1978)

MANITOBA

Distribution of industry expenditures on forest management by source and activity, 1979

Activity	Gross expenditure	Recovered from gov't	Net industry
	$000		
Regeneration	45	5	40
Stand tending	3	3	--
Forest protection	32	--	32
Forest access	1,362	219	1,143
Other forestry	350	9	341
TOTAL	1,792	236	1,556

Source: Reed and Associates Ltd. (1980)

MANITOBA

Distribution of industry expenditures on forest management by source and activity, 1981

Activity	Gross expenditure	Recovered from gov't	Net industry
	$000		
Regeneration	315	315	--
Stand tending	20	20	--
Forest protection	40	6	34
Forest access	1,751	--	1,751
Other forestry	663	85	578
TOTAL	2,789	426	2,363

Source: Canadian Pulp and Paper Association

SASKATCHEWAN

Distribution of industry expenditures on forest management by source and activity, 1977

Activity	Gross expenditure	Recovered from gov't	Net industry
	$000		
Regeneration	324	--	324
Stand tending	--	--	--
Forest protection	313	206	107
Forest access	2,275	127	2,148
Other forestry	178	--	178
TOTAL	3,090	333	2,757

Source: Reed and Associates Ltd. (1978)

SASKATCHEWAN

Distribution of industry expenditures on forest management by source and activity, 1979

Activity	Gross expenditure	Recovered from gov't	Net industry
	$000		
Regeneration	290	--	290
Stand tending	--	--	--
Forest protection	92	--	92
Forest	2,327	--	2,327
Oth[illegible]try	393	--	393
TOTAL	3,102	--	3,102

Source: Reed and Associates Ltd. (1980)

SASKATCHEWAN

Distribution of industry expenditures on forest management by source and activity, 1981

Activity	Gross expenditure	Recovered from gov't	Net industry
	$000		
Regeneration	677	--	677
Stand tending	31	--	31
Forest protection	48	--	48
Forest access	3,651	--	3,651
Other forestry	388	--	388
TOTAL	4,795	--	4,795

Source: Canadian Pulp and Paper Association

ALBERTA

Distribution of industry expenditures on forest management by source and activity, 1977

Activity	Gross expenditure	Recovered from gov't	Net industry
	$000		
Regeneration	2,048	115	1,933
Stand tending	21	--	21
Forest protection	865	--	865
Forest access	8,552	--	8,552
Other forestry	1,590	--	1,590
TOTAL	13,076	115	12,961

Source: Reed and Associates Ltd. (1978)

ALBERTA

Distribution of industry expenditures on forest management by source and activity, 1979

Activity	Gross expenditure	Recovered from gov't	Net industry
	$000		
Regeneration	1,926	--	1,926
Stand tending	43	--	43
Forest protection	993	--	993
Forest access	4,289	--	4,289
Other foreatry	1,237	--	1,237
TOTAL	8,488	--	8,488

Source: Reed and Associates Ltd. (1980)

ALBERTA

Distribution of industry expenditures on forest management by source and activity, 1981

Activity	Gross expenditure	Recovered from gov't	Net industry
	$000		
Regeneration	2,947	108	2,839
Stand tending	109	6	103
Forest protection	703	--	703
Forest access	4,484	--	4,484
Other forestry	2,085	--	2,085
TOTAL	10,328	114	10,214

Source: Canadian Pulp and Paper Association

BRITISH COLUMBIA

Distribution of industry expenditures on forest management by source and activity, 1977

Activity	Gross expenditure	Recovered from gov't	Net industry
		$000	
Regeneration	10,560	5,555	5,005
Stand tending	4,170	1,737	2,433
Forest protection	3,206	1,103	2,103
Forest access	146,448	51,730	94,718
Other forestry	12,407	2,972	9,435
TOTAL	176,791	63,097	113,694

Source: Reed and Associates Ltd. (1978)

BRITISH COLUMBIA

Distribution of industry expenditures on forest management by source and activity, 1979

Activity	Gross expenditure	Recovered from gov't	Net industry
		$000	
Regeneration	21,505	14,400	7,105
Stand tending	8,637	4,500	4,137
Forest protection	5,743	750	4,993
Forest access	158,686	30,400	128,286
Other forestry	24,273	3,950	20,323
TOTAL	218,844	54,000	164,844

Source: Reed and Associates Ltd. (1980)

BRITISH COLUMBIA

Distribution of industry expenditures on forest management by source and activity, 1981

Activity	Gross expenditure	Recovered from gov't	Net industry
		$000	
Regeneration	35,761	21,045	14,716
Stand tending	17,912	10,260	7,652
Forest protection	5,119	792	4,327
Forest access	130,358	31,819	98,539
Other forestry	56,912	3,040	53,872
TOTAL	246,062	66,956	179,106

Source: Canadian Pulp and Paper Association